WIRELESS COMMUNICATION DEVICE AND A METHOD OF MANUFACTURING A WIRELESS COMMUNICATION DEVICE

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to a wireless communication device comprising a housing, a touch sensitive display coupled to the housing, the display comprising preferably a plurality of activation areas for activating the functions of the wireless communication device by pressing the activation areas, and a cover part coupled to the housing and arranged to move in relation to the touch sensitive display, said cover part comprising at least one activation means, wherein in the closed position of the cover part, the activation means is arranged to transmit the pressing of the activation means to the activation area located at the activation means. The present invention further relates to a method of manufacturing a wireless communication device, said wireless communication device comprising a housing, a touch sensitive display coupled to the housing, the display comprising preferably a plurality of activation areas for activating the functions of the wireless communication device by pressing the activation areas, and a cover part coupled to the housing and arranged to move in relation to the touch sensitive display, said cover part comprising at least one activation means, wherein in the closed position of the cover part, the activation means is arranged to transmit the pressing of the activation means to the activation area located at the activation means.

2. Prior Art

To facilitate mobility of people, prior art wireless communication devices can be used, such as cordless telephones and mobile stations. One mobile station that has gained very large popularity is a mobile phone, which can e.g. be a digital mobile phone employing the GSM standard (Global System for Mobile Communications) and operating in a mobile communication system based on the cellular network.

It is known that for storing different data, devices such as notebook computers, small portable computers or PDA devices (Personal Digital Assistants) can be used. To these devices the user can store e.g. calendar data, notes, address data, telephone numbers or corresponding information. Data is input to these devices usually by using a keypad, but it is known that also such devices are available, which are provided with touch sensitive display to control the functions of the devices by touching. Thus, in order to activate the functions of the device it is possible to select commands or activation areas of menus on the display, e.g. by pressing with finger, or text data can be stored into the device by writing it directly to the touch sensitive display by using e.g. a pen-like object. Efficiency of these devices is constantly improving and these devices already include a plurality of properties known from PC devices (Personal Computers). For some devices extension cards in accordance with PCMCIA standard (Personal Computer Memory Card International Association) are available for coupling these devices to mobile phones. Thus, e.g. by PDA devices it is possible, by utilizing radio waves, to send and receive in a wireless manner e.g. facsimile messages, SMS messages (Short Message Service) or other text files. In the present specification, PDA devices denote devices in accordance with the above description.

It is known that also devices are available, wherein the functions of a wireless communication device and a PDA device are combined. One such known device is the Nokia Communicator 9000, which enables connection with Internet network, mobile phone functions, such as receiving an incoming call and dialling a telephone number, and e.g. receiving facsimile messages. Properties of wireless communication devices, such as mobile phones, are constantly increasing and include usually functions for e.g. storing telephone numbers of persons and companies. In the present specification wireless communication devices also denote a wireless device which includes functions of the above-described PDA device or the like.

One known device of the above-described type is described also in patent GB-2291560. The device comprises a touch sensitive display coupled to a housing, wherein the functions of the device can be controlled by touching the activation areas of the display. The touch sensitive display further comprises a display area wherein e.g. data known from mobile phones, such as telephone numbers, can be shown. In connection with the touch sensitive display operates a stiff cover part, which is arranged moveable by a hinge and can be turned into closed position to cover the touch sensitive display. In apertures made in the cover part also mechanically actuating activation means, i.e. keys, are arranged in a manner that when pressing the activation means with the cover part in the closed position they touch the activation areas of the touch sensitive display and thus transmit e.g. a pressing of a finger to the display in order to activate the functions of the device. The device described in patent GB-2291560 operates as a mobile phone with the cover part in the closed position. The device also operates as a PDA device with the cover part in the open position, wherein the functions of the device can be controlled by directly touching the activation areas of the display, e.g. by using a finger. When the cover part is in the open position pressing the keys has no effect, because with the cover part in this position the motion of the keys does not reach the touch sensitive display. The hinge of the cover part of the device is provided with a sensor switch detecting the position of the cover part and controlling the operation of the device. The cover part further operates as a cover protecting the touch sensitive display. In accordance with prior art, also such mobile phones are available which have a planar, non-transparent, stiff cover protecting the keys and positioned in the housing of the mobile phone in a manner that it can be opened and closed. In the cover, also an aperture is arranged, through which the display or display area of the mobile phone is readable. Often in the cover also a microphone of the mobile phone is positioned, wherein the cover has to be opened for the call.

However, a versatile and easy use of the device described in patent GB-2291560 is cumbered by the fact that for activating the PDA functions, the cover part of the device has to be moved to its opened position. Another disadvantage is that the aperture of the cover part has to be large for large quantities of data, such as text messages or lists, to be shown on the display also when the cover part is closed. This leads to a large size of the device itself, and to the fact that the device is difficult to use, because the cover part has to be provided also with keys. A drawback of the device is particularly the fact that the keys of the cover part are always in constant positions and provided with constant markings. Thus, in case the order of the keys is wished to be changed or the function of a key is wished to be changed, the cover part with the keypad has to be changed. In addition, even if it were possible to redefine the quantity, area and position of the activation areas of the touch sensitive display which are positioned at the place of the keys of the cover part and